IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent of:

Lawrence E. Fosdick et al.

Patent No. 7,816,514

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Application No. 10/685,125

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For: GLUCOSAMINE AND METHOD OF MAKING GLUCOSAMINE FROM MICROBIAL BIOMASS

Examiner: Elli Peselev

Art Unit: 1623

Attorney Reference No. 6682-65310-01

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COMMISSIONER FOR PATENTS

LETTER OF CORRECTION

The following printing errors were noted in comparing the printed patent with the papers in the attorneys' files:

In the References Cited:

Page 1, left column, "3,683,076 A 8/1972 Robati"

should read --3,683,076 A 8/1972 Rovati--.

Page 3, right column, "Eitelman, Stephen J. et al., "Decomposition.Reactions of Amino Sugars: The Dehydration of 2-Amino-2-Deoxy-D-Glucose," *Carbohydrate Research*, vol. 77, pp. 205-211 (1979)."

should read -- Eitelman, Stephen J. et al., "Decomposition Reactions of Amino Sugars: The Dehydration of 2-Amino-2-Deoxy-D-Glucose," *Carbohydrate Research*, vol. 77, pp. 205-211 (1979).--.

Page 3, right column, "Falk, Michael et al., "Studies on Chitan ((β-(1→4),-Linked 2-Acetamido-2-Deoxy-D-Glucan) Fibers of the Diatom Thalassiosira Fluviatilis Hustedt" *Canadian Journal of Chemistry*, vol. 44, pp. 2269-2281 (1966)."

should read --Falk, Michael et al., "Studies on Chitin (β-(1→4),-Linked 2-Acetamido-2-Deoxy-D-Glucan) Fibers of the Diatom Thalassiosira Fluviatilis Hustedt" *Canadian Journal of Chemistry*, vol. 44, pp. 2269-2281 (1966).--.

Page 4, right column, Qin, Cai-qin et al., "Prediction and Control of Extent of Deploymerization of Chitosan by Hydroperoxide," *J. Wuhan Univ. (Nat. Sci. Ed.)*, vol. 46, No. 2, pp. 195-198 (Apr. 2000) (English translated title and abstract)."

> should read --Prediction and Control of Extent of Depolymerization of Chitosan by Hydroperoxide," *J. Wuhan Univ. (Nat. Sci. Ed.)*, vol. 46, No. 2, pp. 195-198 (Apr. 2000) (English translated title and abstract).--.

Page 4, right column, "Respondent NFT's Motion for Leave to File Reply to Complaint Cargill, Incorporated's Opposition to NFT's Motion for Summary Determination of Invalidity of the '433 Patent (dated Jun. 18, 2009)."

> should read --Respondent NFT's Motion for Leave to File Reply to Complainant Cargill, Incorporated's Opposition to NFT's Motion for Summary Determination of Invalidity of the '433 Patent (dated Jun. 18, 2009).--.

Page 4, right column, "Ruiz-Herrera, J., "Biosynthesis of (β-glucans in fungi," Antonie van Leeuwenhoek, vol. 60, pp. 73-81 (1991)."

> should read --Ruiz-Herrera, J., "Biosynthesis of β-glucans in fungi," Antonie van Leeuwenhoek, vol. 60, pp. 73-81 (1991).--.

Page 5, right column, "Xiaoqin, Fu et al., "A Kind of Fiber Formating Material with Abundant Source-Chitin-The Structure of Chitin," *Guangdong Chemical Fiber*, pp. 22-25 (Sep. 1996) (English translated title and abstract)."

> should read -- Xiaoqin, Fu et al., "A Kind of Fiber Formatting Material with Abundant Source-Chitin-The Structure of Chitin," *Guangdong Chemical Fiber*, pp. 22-25 (Sep. 1996) (English translated title and abstract).--.

Page 6, left column, "Yu, Zidong et al., "Study on Preparation of Carboxmethyl Chitosan," *Guangxi Light Industry*, No. 3, pp. 17-19 (1998) (English translated title and abstract)."

> should read --Yu, Zidong et al., "Study on Preparation of Carboxymethyl Chitosan," *Guangxi Light Industry*, No. 3, pp. 17-19 (1998) (English translated title and abstract).--.

Page 6, left column, "Zhou, Tao et al., "Study of Preparation and Characterization of Trypsin Immobilized to Chitosan," *Journal of Ningbo University*, vol. 12, No. 1, pp. (Mar. 1999) (English translated title and abstract)."

> should read --Study of Preparation and Characterization of Trypsin Immobilized to Chitosan," *Journal of Ningbo University*, vol. 12, No. 1, pp. 28-32 (Mar. 1999) (English translated title and abstract).--.

Page 6, left column, "Zongshun, Cao et al., "Studies on Preparation of Chitosan Films and It's Stability," *Chinese Journal of Biochemical Pharmaceutics*, pp. 178-179 (Apr. 16, 1995) (English translated title and abstract)."

> should read --Zongshun, Cao et al., "Studies on Preparation of Chitosan Films and Its Stability," *Chinese Journal of Biochemical Pharmaceutics*, pp. 178-179 (Apr. 16, 1995) (English translated title and abstract).--.

Page 6, right column, "Johnston, I., "The Composition of the Cell Wall of *Asperigillus niger*," *Biochem. J.*, vol. 96, pp. 651-658 (1965)."

> should read --Johnston, I., "The Composition of the Cell Wall of *Aspergillus niger*," *Biochem. J.*, vol. 96, pp. 651-658 (1965).--.

Page 7, left column, "Muzzarelli, R. et al., "Chelating, Film-Forming, and Coagulating Ability of the Citosan-Glucan Complex from Aspergillus niger Industrial Wastes," *Biotechnology and Bioengineering*, vol. XXII, pp. 885-896 (1980)."

> should read --Muzzarelli, R. et al., "Chelating, Film-Forming, and Coagulating Ability of the Chitosan-Glucan Complex from Aspergillus niger Industrial Wastes," *Biotechnology and Bioengineering*, vol. XXII, pp. 885-896 (1980).--.

Page 7, left column, "Nogawa, M. et al., "Purification and Characterization of Exo-ß-D-Glucosaminidase from a Cellulolytic Fungas, *Trichoderma reesei* PC-3-7," *Appl. Environ. Microbiol.*, vol. 64, No., 3, pp. 890-895 (Mar. 1998)."

> should read --Nogawa, M. et al., "Purification and Characterization of Exo-ß-D-Glucosaminidase from a Cellulolytic Fungus, *Trichoderma reesei* PC-3-7," *Appl. Environ. Microbiol.*, vol. 64, No., 3, pp. 890-895 (Mar. 1998).--.

Page 7, left column, "Pelletier, A. et al., "Chitin/Chitosan Tranformation by Thermo-Mechano-Chemical Treatment Including Characterization by Enzymatic Depolymerization," *Biotechnology and Bioengineering*, vol. 36, pp. 310-315 (1990)."

> should read --Chitin/Chitosan Transformation by Thermo-Mechano-Chemical Treatment Including Characterization by Enzymatic Depolymerization," *Biotechnology and Bioengineering*, vol. 36, pp. 310-315 (1990).--.

Page 7, left column, "Roberts, G. et al., "Determination of the Viscomtric Constants for Chitosan," *Int. J. Biol.*, vol. 4, pp. 374-377 (Oct. 1982)."

> should read --Roberts, G. et al., "Determination of the Viscometric Constants for Chitosan," *Int. J. Biol.*, vol. 4, pp. 374-377 (Oct. 1982).--.

Page 7, right column, "Yang et al., "Acidic hydrolysis and determination of fungal mycelium in cereals," Chinese Journal Abstract, Chinese Agricultural Chimical Society (1998) 36(6), 555-564."

> should read --Yang et al., "Acidic hydrolysis and determination of fungal mycelium in cereals," Chinese Journal Abstract, Chinese Agricultural Chemical Society (1998) 36(6), 555-564.--.

In the Specification:

Column 7, line 33, "HCL 0.16% 0.19%" should read --HCl 0.16% 0.19%--.
Column 8, line 53, "specific of the" should read --specific embodiment of the--.
Column 12, line 8, "for this the" should read --for the--.
Column 13, lines 5-6, "produced in the yield" should read --produced a yield--.
Column 15, line 47, "was combined" should read --were combined--.
Column 16, line 29, "combined with HCL" should read --combined with HCl--.
Column 17, line 20, "*Percent yields based on 24% theoretical chitin in dry biomass Glucosamine yields are not" should read --*Percent yields based on 24% theoretical chitin in dry biomass. Glucosamine yields are not--.
Column 17, line 24, "Examples 8 and 9" should read --Examples 7 and 8--.
Column 17, line 25, "and or pressure" should read --and/or pressure--.
Column 18, lines 34-35, "50% percent" should read --50%--.

In the Claims:

Column 20, line 3, "chitin-containinq" should read --chitin-containing--.
Column 20, line 9, "to qlucosamine" should read --to glucosamine--.

In the Drawings:

Figure 2 shows:

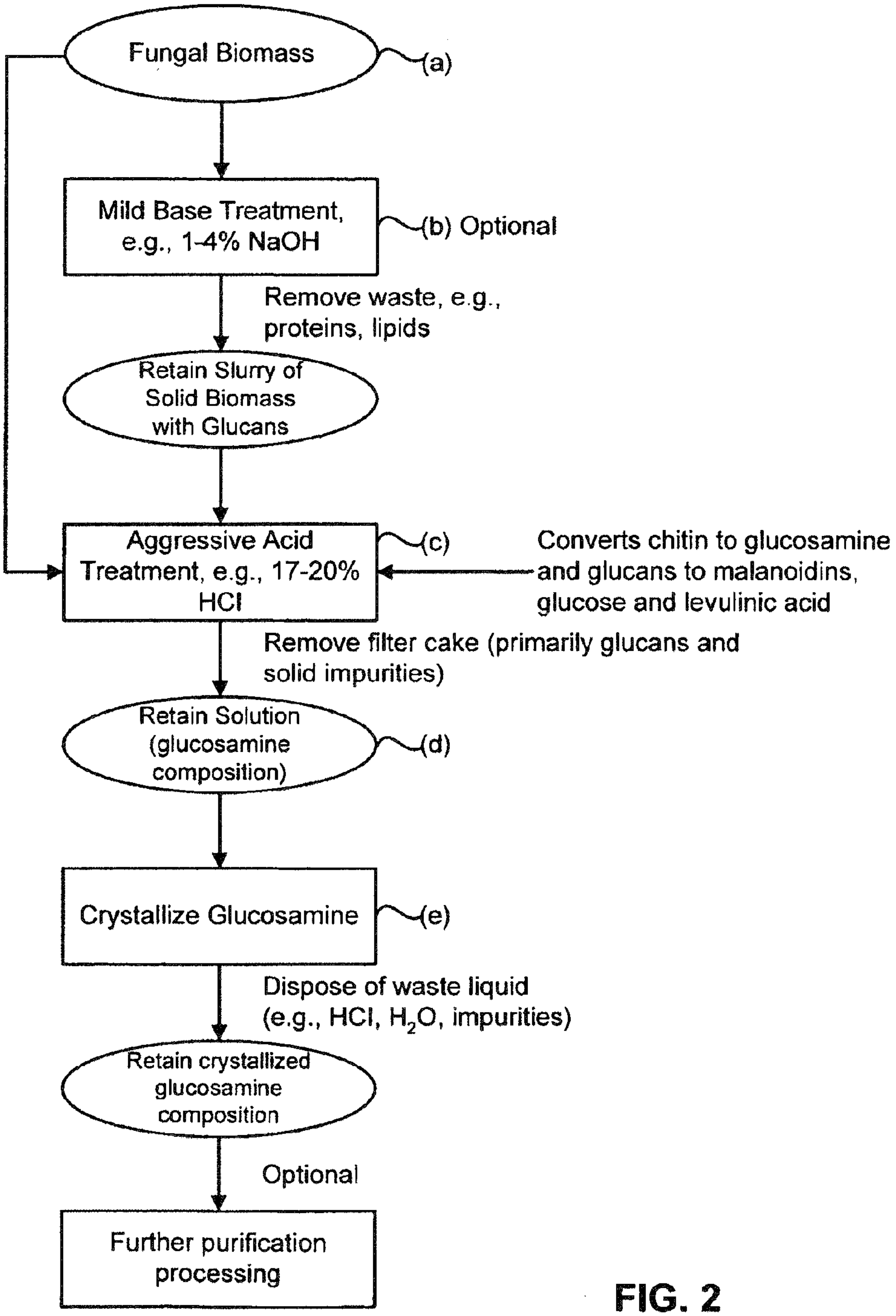
Fungal Biomass
(a)
Mild Base Treatment, e.g., 1-4% NaOH
(b) Optional
Remove waste, e.g., proteins, lipids
Retain Slurry of Solid Biomass with Glucans
Aggressive Acid Treatment, e.g., 17-20% HCl
(c)
Converts chitin to glucosamine and glucans to malanoidins, glucose and levulinic acid
Remove filter cake (primarily glucans and solid impurities)
Retain Solution (glucosamine composition)
(d)
Crystallize Glucosamine
(e)
Dispose of waste liquid (e.g., HCl, H2O, impurities)
Retain crystallized glucosamine composition
Optional
Further purification processing

FIG. 2

Figure 2 should show:

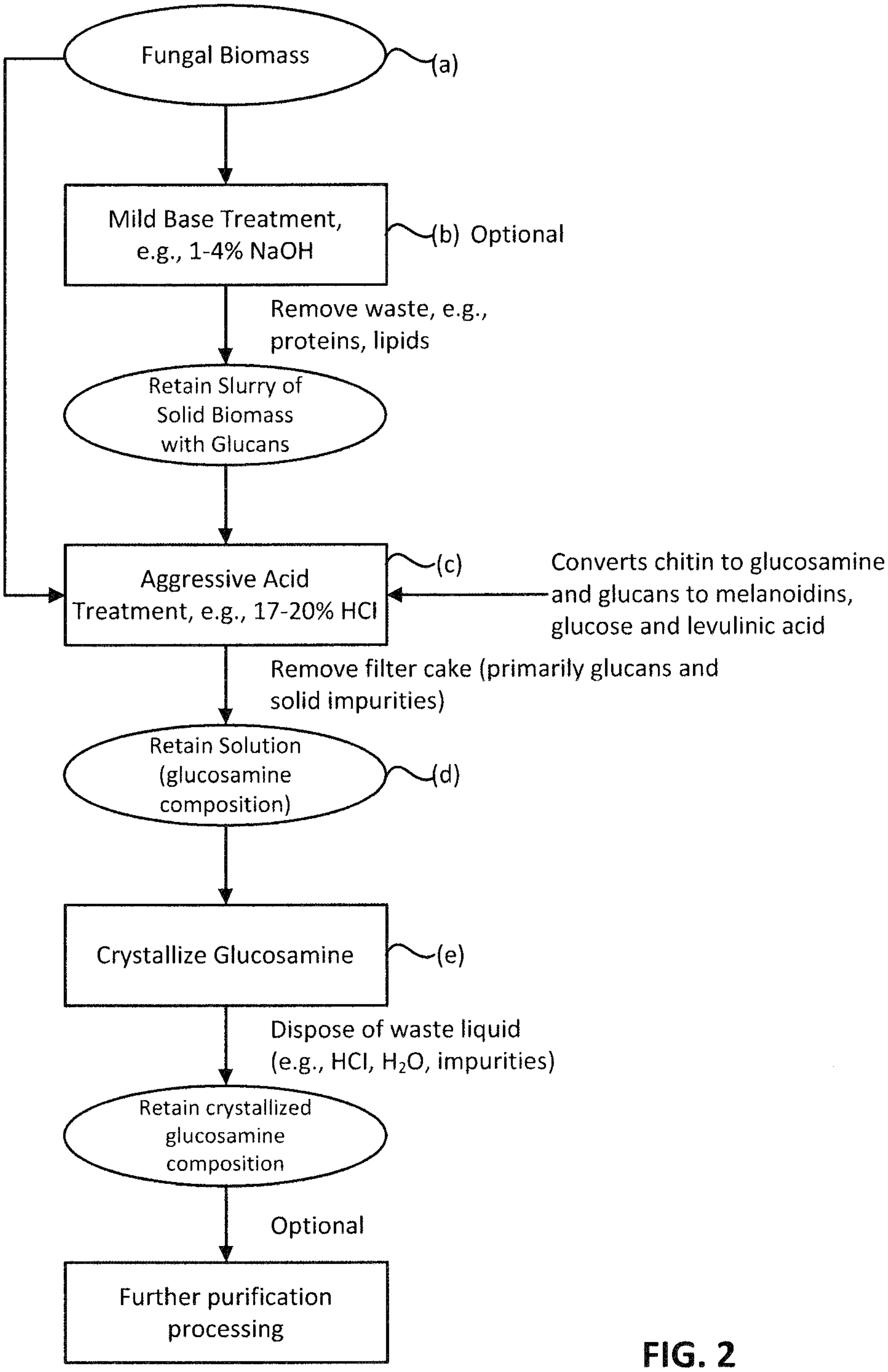
Fungal Biomass
(a)
Mild Base Treatment, e.g., 1-4% NaOH
(b) Optional
Remove waste, e.g., proteins, lipids
Retain Slurry of Solid Biomass with Glucans
Aggressive Acid Treatment, e.g., 17-20% HCl
(c)
Converts chitin to glucosamine and glucans to melanoidins, glucose and levulinic acid
Remove filter cake (primarily glucans and solid impurities)
Retain Solution (glucosamine composition)
(d)
Crystallize Glucosamine
(e)
Dispose of waste liquid (e.g., HCl, H2O, impurities)
Retain crystallized glucosamine composition
Optional
Further purification processing

FIG. 2

Figure 3 shows:

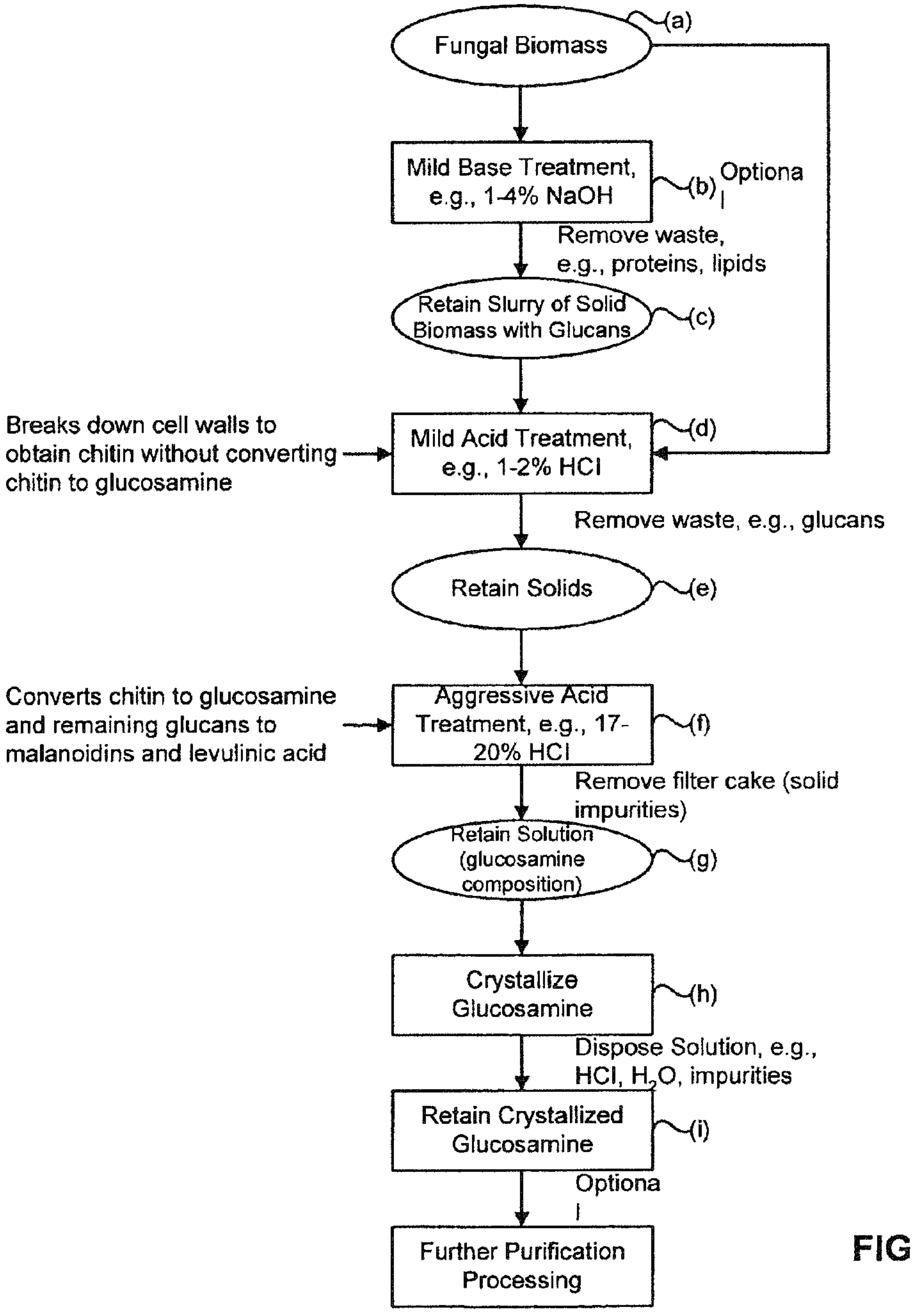
Fungal Biomass
(a)
Mild Base Treatment, e.g., 1-4% NaOH
(b)
Optional
Remove waste, e.g., proteins, lipids
Retain Slurry of Solid Biomass with Glucans
(c)
Breaks down cell walls to obtain chitin without converting chitin to glucosamine
Mild Acid Treatment, e.g., 1-2% HCl
(d)
Remove waste, e.g., glucans
Retain Solids
(e)
Converts chitin to glucosamine and remaining glucans to malanoidins and levulinic acid
Aggressive Acid Treatment, e.g., 17-20% HCl
(f)
Remove filter cake (solid impurities)
Retain Solution (glucosamine composition)
(g)
Crystallize Glucosamine
(h)
Dispose Solution, e.g., HCl, H_2O, impurities
Retain Crystallized Glucosamine
(i)
Optional
Further Purification Processing

FIG. 3

Figure 3 should show:

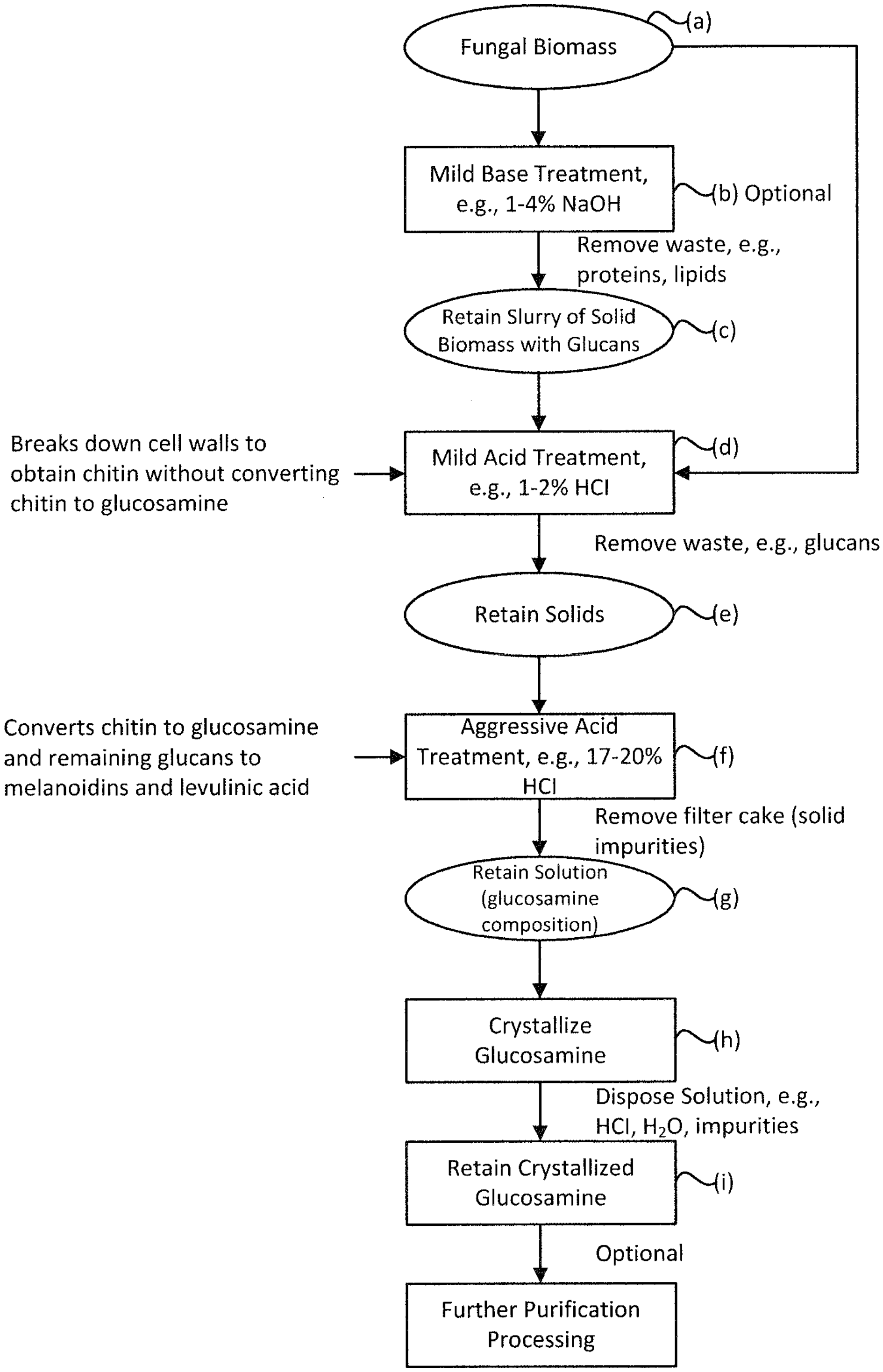
Fungal Biomass
(a)
Mild Base Treatment, e.g., 1-4% NaOH
(b) Optional
Remove waste, e.g., proteins, lipids
Retain Slurry of Solid Biomass with Glucans
(c)
Breaks down cell walls to obtain chitin without converting chitin to glucosamine
Mild Acid Treatment, e.g., 1-2% HCl
(d)
Remove waste, e.g., glucans
Retain Solids
(e)
Converts chitin to glucosamine and remaining glucans to melanoidins and levulinic acid
Aggressive Acid Treatment, e.g., 17-20% HCl
(f)
Remove filter cake (solid impurities)
Retain Solution (glucosamine composition)
(g)
Crystallize Glucosamine
(h)
Dispose Solution, e.g., HCl, H_2O, impurities
Retain Crystallized Glucosamine
(i)
Optional
Further Purification Processing

FIG. 3

Figure 8 shows:

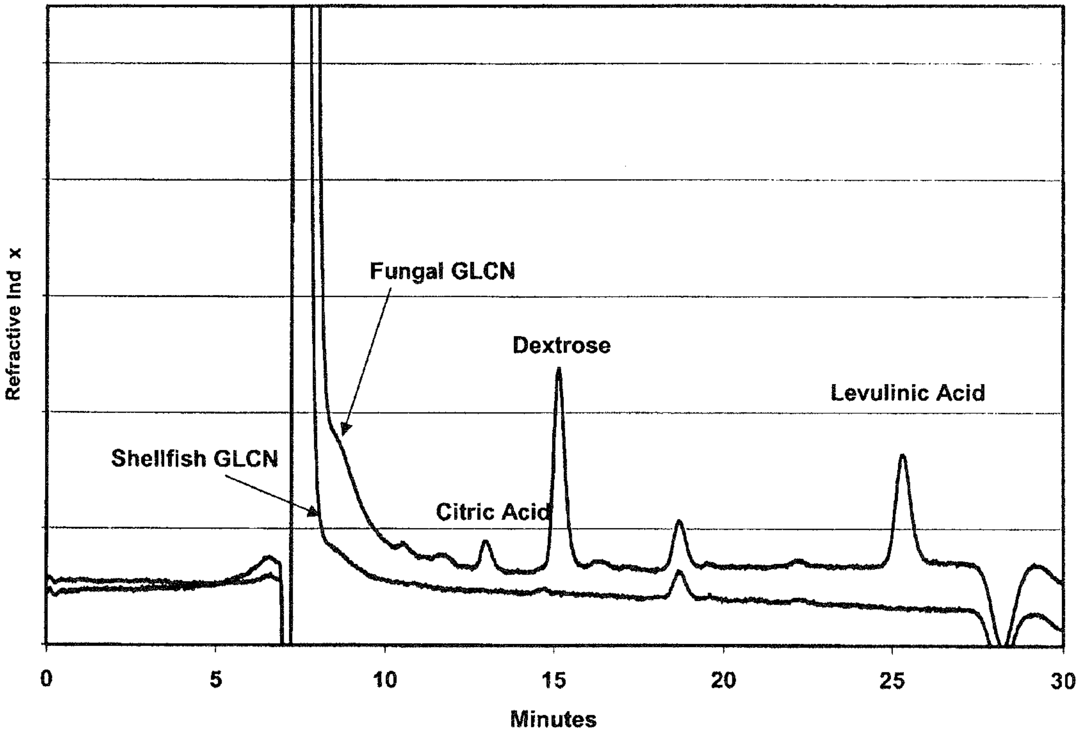

Fig. 8

Figure 8 should show:

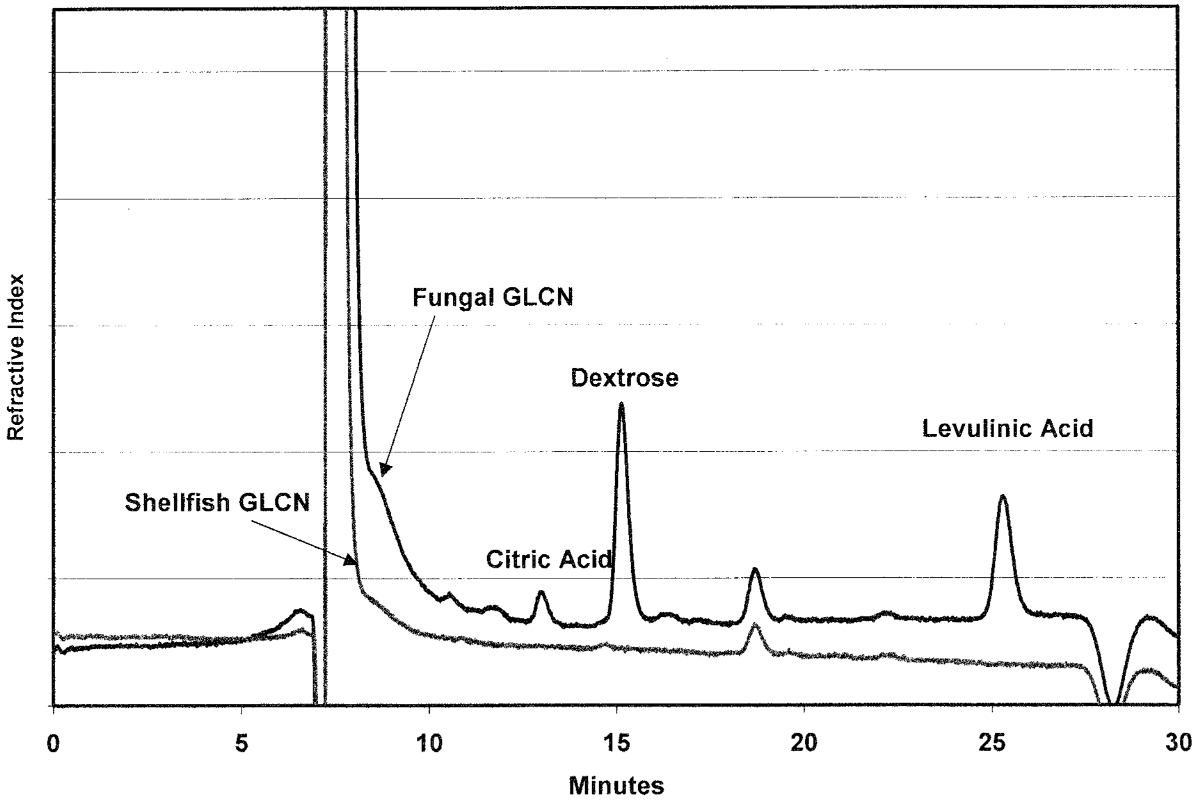

Fig. 8

All of the above errors are not considered to be of major significance. Applicants request that this document be included in the file wrapper of the subject patent to make formal notice of the errors.

Respectfully submitted,

KLARQUIST SPARKMAN, LLP

By

Lisa M. Caldwell
Registration No. 41,653

One World Trade Center, Suite 1600
121 S.W. Salmon Street
Portland, Oregon 97204
Telephone: (503) 595-5300
Facsimile: (503) 595-5301